Human Machine Interface

# PMU Series

PMU 830 / 730 / 530 / 330 Series

Automation Equipment

LS Industrial Systems

New Name of LG Industrial Systems

www.lsis.biz

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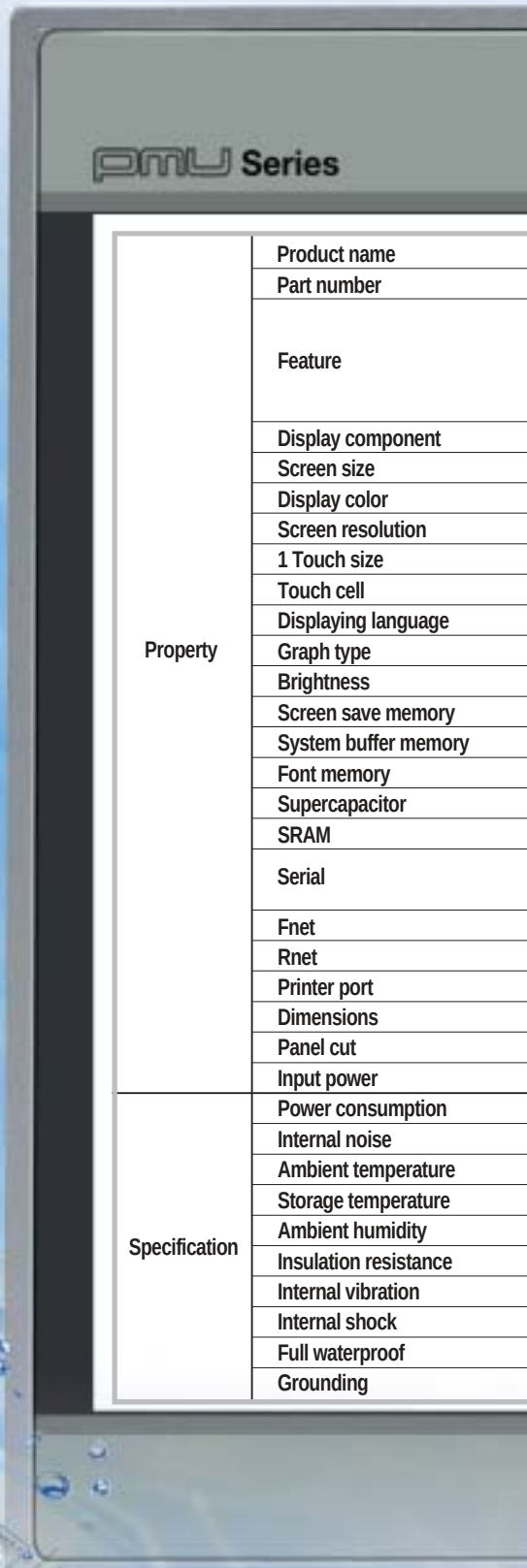
# pmu Series

**Providing screens with 256 colors and upgraded functions and performance, we have enhanced competitive strength.**




## High-speed communication

- 32-bit processor adopted for high-speed graphic process
- Maximum communication speed:115,200bps
- Screen transfer support

## Easy operation

- Direct input of controller address and variable libraries support
- Easy to communicate with LS PLCs via Fnet/Rnet
- Recipe function for batch processing of parameter data
- Data logging for running data back-up
- Basic TENKEY support (no program needed)
- Image scale up/down

## Various image functions

- Various products:4 products/9 features
- Screen configuration with 256 colors
- Various image functions available (background bitmap, transparent bitmap, etc.)
- Various network configurations thanks to various communication drivers and communication functions
- Simultaneous communication with 2 different PLCs via COM1 and COM2
- Script function support
- Various language table support

| | |
|---|---|
| Property | Product name |
| | Part number |
| | Feature |
| | Display component |
| | Screen size |
| | Display color |
| | Screen resolution |
| | 1 Touch size |
| | Touch cell |
| | Displaying language |
| | Graph type |
| | Brightness |
| | Screen save memory |
| | System buffer memory |
| | Font memory |
| | Supercapacitor |
| | SRAM |
| | Serial |
| | Fnet |
| | Rnet |
| | Printer port |
| | Dimensions |
| | Panel cut |
| | Input power |
| Specification | Power consumption |
| | Internal noise |
| | Ambient temperature |
| | Storage temperature |
| | Ambient humidity |
| | Insulation resistance |
| | Internal vibration |
| | Internal shock |
| | Full waterproof |
| | Grounding |



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| | PMU-830 | PMU-730 | | PMU-530 | | PMU-330 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | PMU-830TT(/DC) | PMU-730TTS(/DC) | PMU-730STS(/DC) | PMU-530TTS | PMU-530ST | PMU-330TT | PMU-330ST | PMU-330BT | PMU-330BTE |
| | | | | | | | | | |
| | TFT Color | TFT Color | STN Color | TFT Color | STN Color | TFT Color | STN Color | STN Mono | STN Mono |
| | 12.1″ | 10.4″ | 10″ | 8″ | 7.5″ | 5.5″ | 5.7″ | 5.7″ | 5.7″ |
| | 256colors | | | | | | | BLUE (MONO) | |
| | 1×1 (Dot) | | | 1×1 (Dot) | | 20×20 (Dot) | | | 1×1 (Dot) |
| | 800×600 | | | 800×600 | 640×480 | 16×12 | | | 320×240 |
| | Analog | | | Analog | | Matrix | | | Analog |
| | English, Chinese, Japanese, Korean | | | | | | | | |
| | Bar, Trend, Meter, Pie, XY Chart | | | | | | | | |
| | 135 cd/㎡ | 200 cd/㎡ | 100 cd/㎡ | 150 cd/㎡ | 147 cd/㎡ | 250 cd/㎡ | 75 cd/㎡ | 220 cd/㎡ | |
| | 4M | | | | 2M | | 1M | 1M | 512K |
| | 3072 Word | | | | | | | | |
| | 1M (8×8, 8×16, 16×16, 16×32, 32×32 FONT support) | | | | | | | | 512K |
| | Built-in | | | | Option | | | | × |
| | Built-in (256 KB) | | | | Option | | | | × |
| | RS232C/2ports (MAX 115200bps)<br>RS422 (MAX 115200bps) | | | | | | | | |
| | Option | | | | | | | | × |
| | Option | | | | | | | | × |
| | Built-in | | | Option | | | | | × |
| | 305(W) × 239(H) × 55(D) mm | | | 240(W)×170(H)×62(D) mm | | 206(W) × 136(H) × 64(D) mm | | | |
| | 294(W) × 228(H) mm | | | 231(W) × 161(H) mm | | 198(W) × 128(H) mm | | | |
| | 85~265VAC, (/DC):21~28V DC | | | 21~28V DC | | | | | |
| | 20W | | | 12W | | | | | |
| | 1200Vp-p | | | 900Vp-p | | | | | |
| | 0~50℃ | | | | | | | | |
| | -10~60℃ | | | | | | | | |
| | Below 85% RH | | | | | | | | |
| | 10MΩ | | | | | | | | |
| | 10 ≤ F ≤ 25 Hz | | | | | | | | |
| | 10G | | | | | | | | |
| | IP65F | | | | | | | | |
| | Class 3 grounding | | | | | | | | |



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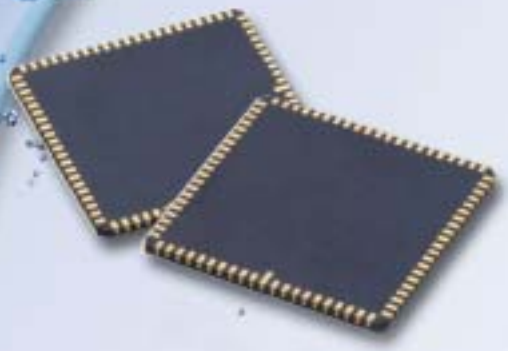
pmu 30 Series



## 32-bit RISC CPU enables a high-speed processing

- 256 colors support
- Equivalent process speed in bitmap and general diagram
- Improved calculation speed with multi-thread process
- Max. 115,200bps baud rate support

## Extended memory capacity

- Batteryless backup : flash memory
- Screen save memory with 1~4MB
- Enhanced memory efficiency
- 3072-word buffering for data process
- 256K memory for data logging and recipe
- Screen save and logging memory extension (when required)

## Various network configurations

- Built-in RS-232C/422 communication ports
- Connecting to PLC enables communication diagnosis
- N:1 communication using RS-485 port
- 1:N communication using RS-422 port
- Print : built-in printer port (PMU-730/830), option module (PMU-330/530)
- N:1 communication using Fnet/Rnet
- Simultaneous communication with different PLCs via PMU ports (COM1, COM2)



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## Numeric display

- Numeric data display: DEC, HEX and BCD type
- Data display with 8 different colors depending on the numeric range variance
- Data from controllers can be displayed after calculation
- ASCII CODE, read from PLC or controller, can be displayed with characters

## Data input function

- Data setting with min./max. value
- Input range limit
- Data input using TENKEY
- Password encrypted
- Basic TENKEY support (No program needed)

## Touch and lamp function

- **Caption**
  Displays 2 letters according to the device status (ON/OFF) when using touch/lamp tag
  Various font and language support with image-text
- **Touch color**
  Displays the device status (ON/OFF) with colors after operation of touch button with lamp function
- **Data lamp**
  Displays lamp with 8 colors, according to the data range, while monitoring data
- Maximum 10 functions can be set up with one touch tag

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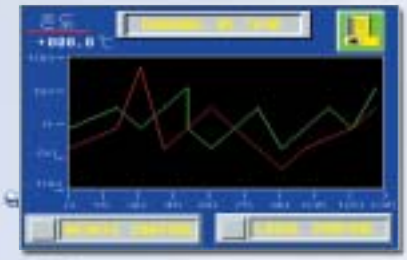
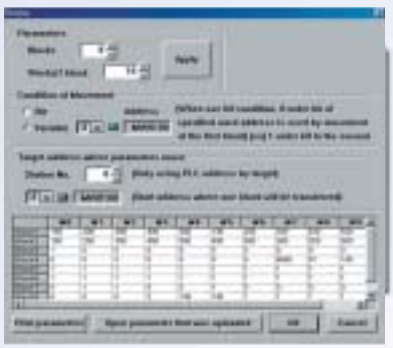


## Graph function

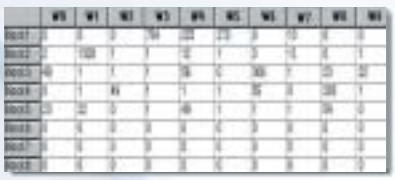
- **Trend graph**
  - Input value change is visually shown with the time axis
  - 10 data can be set up with one graph
  - Logging data and recipe data trend available

- **Meter graph**
  - Sets the lowest/highest value of data and displays current data in rate
  - Preset warning color is shown when data are out of range
  - Analog data (voltage, current) display



## Recipe function

- Running data of each work are stored in PMU
- When work changes, running data are batch-transferred to the controller
- Converts the setup data into MS EXCEL format
- High-performance under a varied and small volume production environment



## Data logging

- Data generated during operation are stored in PMU
- Periodic or conditional data logging
- Data stored in PMU can be saved in PC using PMU Editor
- Converts logging data in PC into an MS EXCEL report



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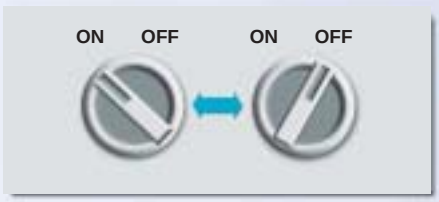
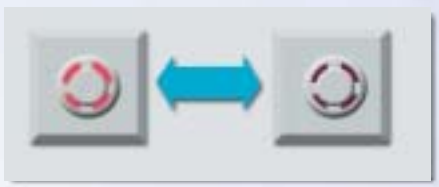
## Various bitmap functions

**256-color bitmap support**
- A realistic screen with 256 colors
- A 256-color bitmap file display available
- Spectacular graphics using various colors
- Various functions using bitmap

**Bitmap touch**
Calls other bitmap according to the device status (ON/OFF) after touch operation

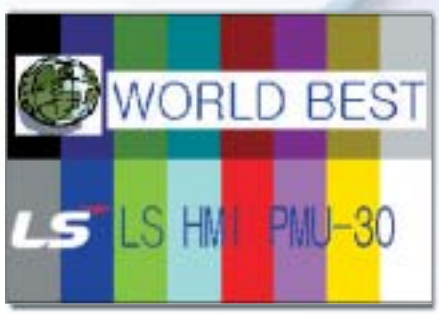



**Bitmap lamp**
Displays other bitmap according to the bit status (ON/OFF) while monitoring



**Background bitmap**
Draws pictures on screen with a background bitmap of the same screen resolution

**Transparent bitmap and lettering function**
Does not display the unnecessary part of bitmap and background of letters



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# PMU 830

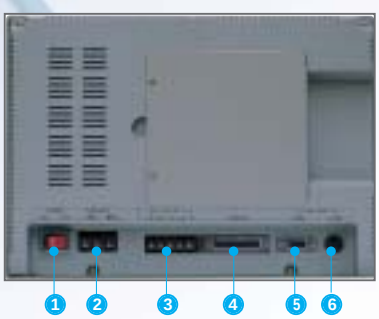
## New Standard of Deluxe Type HMI

PMU-830TT
12.1″ TFT 256 Colors

### Features

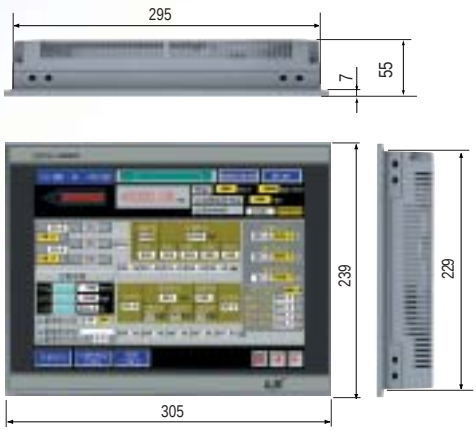
- 32-bit RISC CPU
- 800x600 screen resolution
- 4MB flash memory for saving screen data
- Built-in RS-232C/422 communication port
- Built-in printer port
- Analog touch type
- Data logging function
- Recipe function

### Specifications




| NO | Name | Specifications |
|---|---|---|
| 1 | Switch | Main power switch |
| 2 | Power port | Main power port of PMU (AC85~265V) |
| 3 | RS-422 port | 5-pin RS-422 serial communication port |
| 4 | Printer connector | Printer connection connector |
| 5 | RS-232C port | 9-pin RS-232C serial communication port |
| 6 | PS2 connector | Program downloading port/COM1 comm. |

### Size (mm)



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# pmu 730

## Standard and High Performance HMI

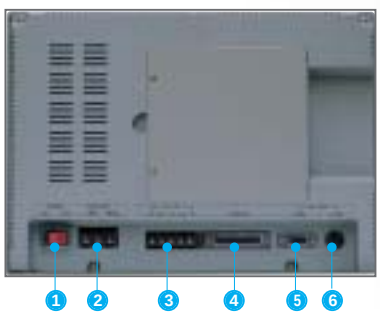
PMU-730TTS
10.4″ TFT 256 Colors

PMU-730STS
10″ STN 256 Colors

### Features

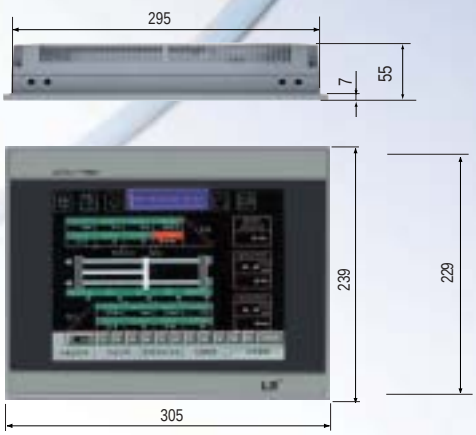
- 32-bit RISC CPU
- 800x600 screen resolution
- 4MB/2MB flash memory for saving screen data
- Built-in RS-232C/422 communication port
- Built-in printer port
- Analog touch type
- Data logging function
- Recipe function

### Specifications




| NO | Name | Specifications |
|---|---|---|
| 1 | Switch | Main power switch |
| 2 | Power port | Main power port of PMU (AC85~265V) |
| 3 | RS-422 port | 5-pin RS-422 serial communication port |
| 4 | Printer connector | Printer connection connector |
| 5 | RS-232C port | 9-pin RS-232C serial communication port |
| 6 | PS2 connector | Program downloading port/COM1 comm. |

### Size (mm)



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# PMU S30

## Economic and Best Fit

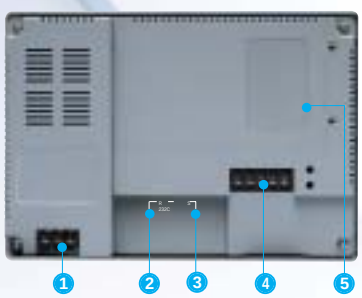
PMU-530TTS
8 ″ TFT 256 Colors

PMU-530ST
7.5 ″ STN 256 Colors

### Features

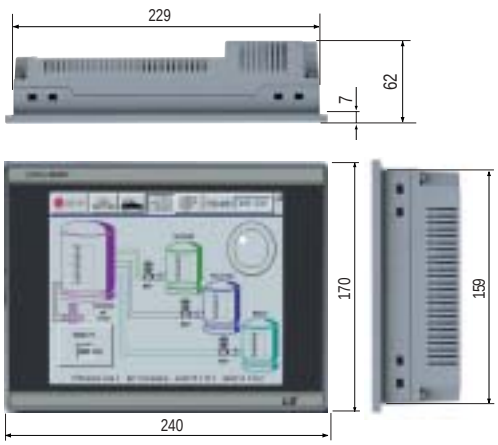
- 32-bit RISC CPU
- 800x600, 640x480 screen resolution
- 4M/2M flash memory for saving screen data
- Analog touch type
- Data logging function
- Recipe function

### Specifications




| NO | Name | Specifications |
|---|---|---|
| 1 | Power port | Main power port (AC85~265V) |
| 2 | PS2 connector | Program downloading port/COM1 comm. |
| 3 | RS-232C port | 9-pin RS-232C serial communication port |
| 4 | RS-422 port | 5-pin RS-422 serial communication port |
| 5 | Option card connector | Printer and memory extension connection port |

### Size (mm)



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pmu 330

# Economic and Wide Range of HMI

PMU-330TT
5.5 ″ TFT 256 Colors

PMU-330ST
5.7 ″ STN 256 Colors

PMU-330BT
5.7 ″ STN Mono Color

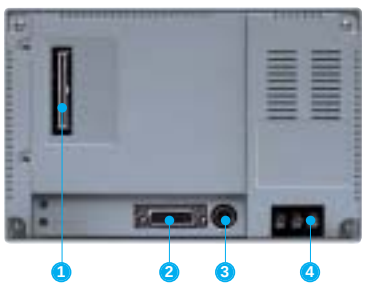
NEW

PMU-330BTE
5.7 ″ STN Mono Color

## Features

- 32-bit RISC CPU
- 320x240 screen resolution
- 2M/1M/512K flash memory for saving screen data
- Data logging function
- Recipe function

## Specifications




| NO | Name | Specifications |
|---|---|---|
| 1 | Option card connector | - |
| 2 | Serial communication port | RS-232C: 2 (RX), 3 (TX), 5 (SG)<br>RS-422: 11 (RX+), 12 (RX-), 13 (TX+) 14 (TX-), 15 (SG) |
| 3 | PS2 connector | Program downloading port/COM1 comm. |
| 4 | Power port | Main power port (AC85 ~ 265V) |

## Size (mm)

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# PMU Editor

## Powerful Functions and Convenient Interfaces

### Features

- Runs on Windows 95/98/NT/2000/XP
- Project integrating environment for convenient use
- OS and font downloading for version upgrade
- Screen magnification support for detailed graphic design (100%, 200%, 300%)
- Assigns direct/indirect devices
- Provides various libraries for the elements of system configuration
- Simulation by connecting to PMU
- Data can be converted into MS EXCEL format
- Basic TENKEY support
- 4 Windows pop up at the same time (8 Windows including sub windows)
- Script function support

### PMU-Editor functions

**Simulation**

Tag ON/OFF, data input and monitoring are possible without connecting to PLC

**Simulation on drawing**

If the status of a bit tag (ON/OFF) changes while drawing the screen, the screen changes can be displayed on PC monitor

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## OS and font downloading

When you upgrade the OS of PMU, OS and font file can be downloaded without disassembling the hardware

## Cross reference function

Displays a list of the PLC addresses registered in a screen. You can modify and batch change PLC addresses if need be

## Various built-in libraries

- Various built-in libraries make it easy to configure the screen
- According to the customer's needs, library registering is available

## PLC address display with a tag

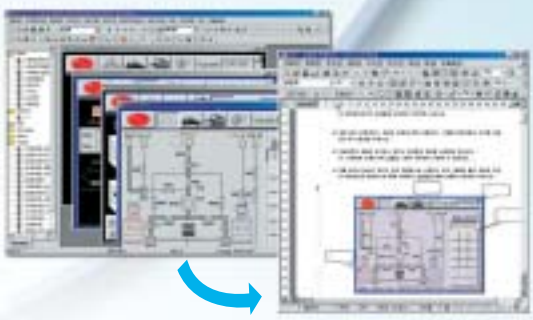
Displays PLC addresses of registered tag in the screen

## Thumbnail function

This function makes you see the screen you draw in a lump

## Screen capture

Screen capture available without any other software



## Finding a specific address

Available to find a tag and its position of registered PLC address in the screen

## Automatic saving function

As setting up the automatic saving time, it saves data at every saving period

## Data conversion function (EXCEL)

Data such as tag list, logging data, recipe data and warning can be converted into MS EXCEL file



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# Network Configuration

## 1:1 Serial communication

**One PLC connection to one PMU: PMU functions as master/slave**

## 1: N Serial Communication

**Connects more than one PLCs to one PMU**

※In case of 1:N communication via RS-422/485, PLCs should be identical.



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## N:1 (RS-485) Communication

**Connects more than one PMUs to one PLC**

※ Applicable PLC : GLOFA-GM, MASTER-K, MELSEC

## N:M (Fnet/Rnet) Communication

**Connects more than one PMUs to more than one LS PLCs**

## 2-port Communication

**Connects one PMU to two different PLCs**

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# Applicable Equipment

| PMU | PMU option | Manufacturer | Type | Model name | Loader | Link |
|---|---|---|---|---|---|---|
| PMU830<br>PMU730<br>PMU530<br>PMU330 | Built-in serial communication | LSIS | PLC | MASTER-K | O | O |
| | | | | GLOFA-GM | O | O |
| | | | VFD (Inverter) | iG5 | RS-485 | |
| | | | | iS5 | RS-485 option board | |
| | | | | iH | RS-485 option board | |
| | | Samsung | PLC | SPC | O | - |
| | | | | FARA-N | O | O |
| | | | | FARA-N70/700 | O | - |
| | | Mitsubishi | PLC | MELSEC-A | O | O |
| | | | | MELSEC-QnA | O | O |
| | | | | MELSEC-Q | O | O |
| | | | | MELSEC-A0J2 | O | O |
| | | | | MELSEC-FX | O | O |
| | | Fuji | PLC | MICREX-F | - | O |
| | | Omron | PLC | SYSMAC-C, CS1 | - | O |
| | | Siemens | PLC | 3964R | - | O |
| | | | | S7-300/400 MPI | O | - |
| | | | | S7-200 PPI | O | - |
| | | AB | PLC | SLC500[5/03,04] | O | - |
| | | | | PLC-5 | O | - |
| | | Yaskawa | PLC | Progic-8 | O | - |
| | | | | MP-920 | O | - |
| | | | | CP-9200SH | O | - |
| | | Modicon | PLC | | Modbus | |
| | | KDT | PLC | Cimon | O | O |
| | | Koyo | PLC | DL-205/305/405 | - | O |
| | | GE Fanuc | PLC | 90-30[SBO-X] | - | O |
| | | POSCON | PLC | POSFA phld-1a/2a | - | O |
| | | Yokokawa | PLC | FA-M3 | - | O |
| | | Delta | PLC | DVP-ES | - | O |
| | PMO-□□□F | LSIS | PLC | MASTER-K | Fnet | |
| | | | | GLOFA-GM | | |
| | PMO-□□□R | LSIS | PLC | MASTER-K | Rnet | |
| | | | | GLOFA-GM | | |



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# PMU Line-up

## PMU-830

| Type | Model | Content |
|---|---|---|
| Main board | PMU-830TT | 12.1" TFT 256-color display, 800X600 screen resolution |

## PMU-730

| Type | Model | Content |
|---|---|---|
| Main board | PMU-730TTS | 10.4" TFT 256-color display, 800X600 screen resolution |
| | PMU-730STS | 10" STN 256-color display, 800X600 screen resolution |
| Communication card * | PMO-730F | Fnet communication card |
| | PMO-730R | Rnet communication card |

*Communication cards for PMU-730 are compatible with PMU-830.

## PMU-530

| Type | Model | Content |
|---|---|---|
| Main board | PMU-530ST | 7.5" STN 256-color display, 640X480 screen resolution |
| | PMU-530TTS | 8" TFT 256-color display, 800X600 screen resolution |
| Communication card | PMO-530F | Fnet communication card |
| | PMO-530R | Rnet communication card |
| Printer card | PMO-530PRT | Printer, Backup Battery |

## PMU-330

| Type | Model | Content |
|---|---|---|
| Main board | PMU-330TT | 5.5" TFT 256-color display, 320X240 screen resolution |
| | PMU-330ST | 5.7" STN 256-color display, 320X240 screen resolution |
| | PMU-330BT | 5.7" STN Mono display, 320X240 screen resolution |
| | PMU-330BTE | 5.7" STN Mono display, 320X240 screen resolution |
| Communication card | PMO-330F | Fnet communication card |
| | PMO-330R | Rnet communication card |
| Printer card | PMO-330PRT | Printer, Back up Battery |

## Common option

| Type | Model | Content |
|---|---|---|
| Cable | PMC-310S | Program downloading cable |
| | PMC-422C | MELSEC-M loader communication cable |
| Software | PMU-Editor | PMU-30 software |



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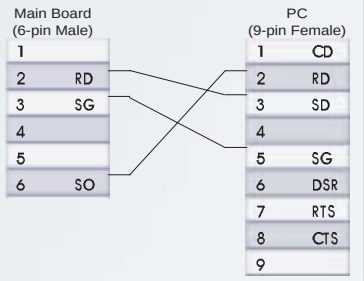
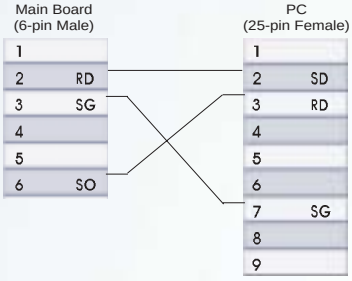
# Cable Connections

## Downloading cable

▶Connection cable between 6-pin downloading port (PMU main board) and 9-pin port (PC)

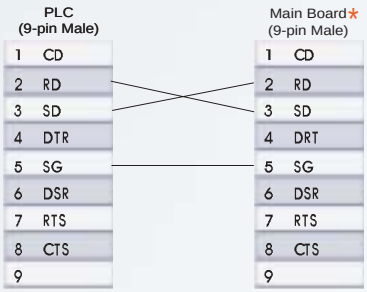



▶Connection cable between 6-pin downloading port (PMU main board) and 25-pin port (PC)

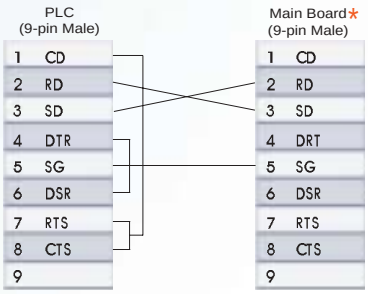



## PLC connection diagram

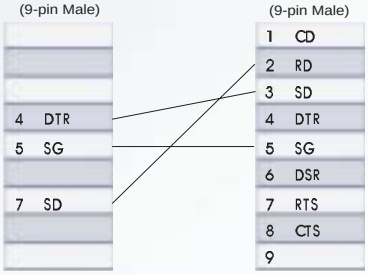
GLOFA-GM, MASTER-K (loader)



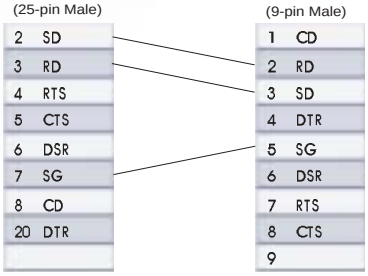

GM communication unit (RS-232C)
MK communication unit (RS-232C)



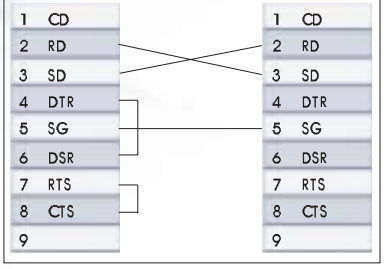

K200S/K80S/GM6/GM7 loader port (Built-in Cnet port)



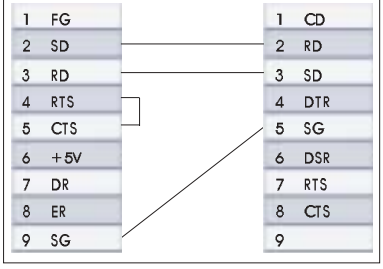

MASTER-K500/1000H (RS-232C)




Modicon modbus (LINK)




OMRON (RS-232C)



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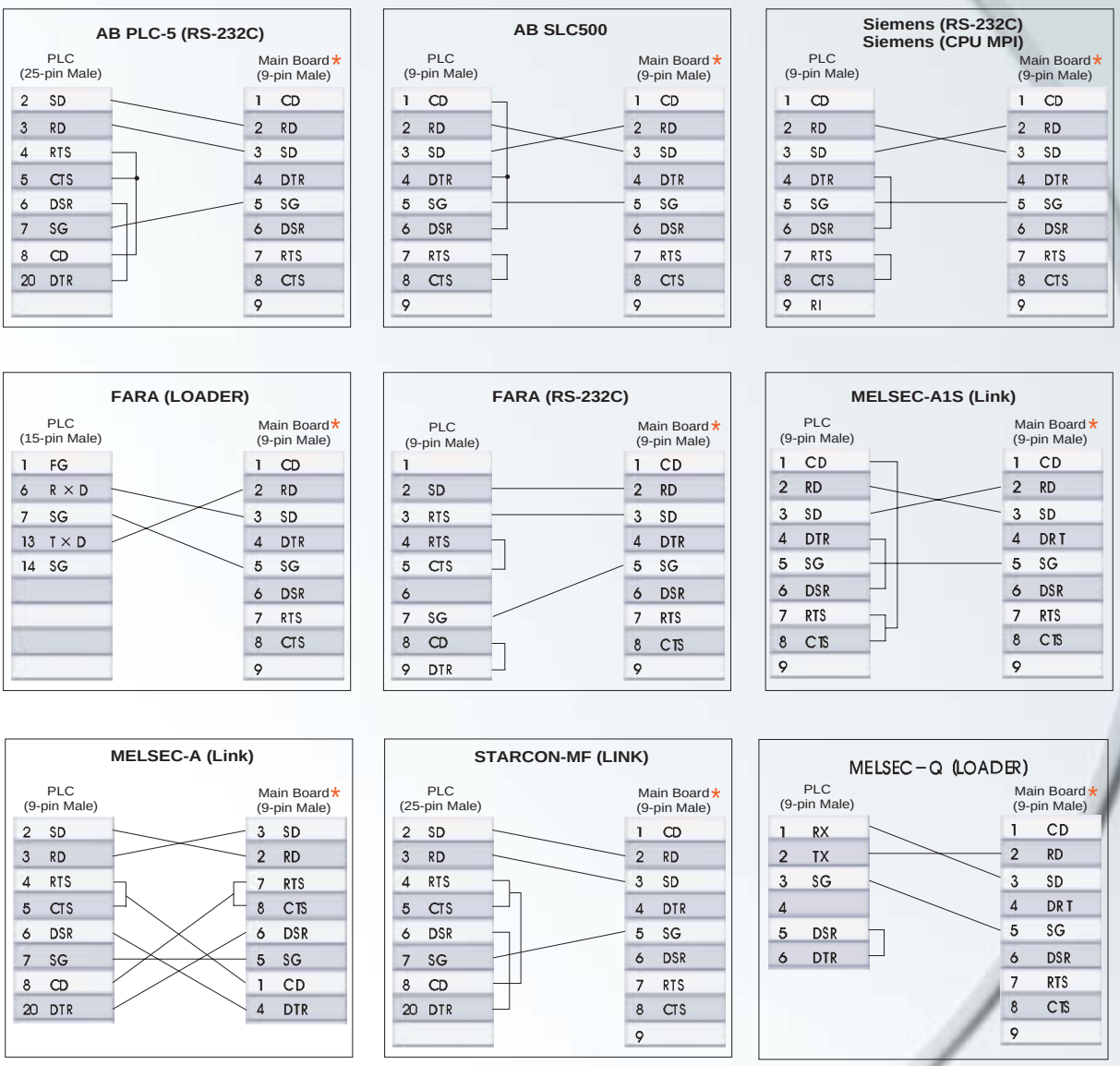
## PLC connection diagram




*15-pin for PMU-330
RS-422 of PMU-330 : 11 (RDA), 12 (RDB), 13 (SDA), 14 (SDB), 15 (SG)



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Safety Instructions

- For your safety, please read user's manual thoroughly before operating.
- Contact the nearest authorized service facility for examination, repair, or adjustment.
- Please contact qualified service technician when you need maintenance.
  Do not disassemble or repair by yourself!
- Any maintenance and inspection shall be performed by the personnel having expertise concerned.

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